

AMENDMENTS TO THE SPECIFICATION

Please replace the Abstract of the Disclosure beginning on page 40 with the following:

A plasma fuel reformer assembly for producing reformate gas includes a fuel reformer having an air/fuel input assembly, an electrode assembly, and a soot trap positioned downstream of the electrode assembly. The electrode assembly includes a first electrode and a second electrode that is spaced apart from the first electrode. The fuel reformer further includes a reformer controller electrically coupled to the air/fuel input assembly. The reformer controller includes a processing unit electrically connected to a memory unit. Stored in the memory unit is a plurality of memory instructions that, when executed by the processing unit, causes the processing unit to: operate the air/fuel input assembly so as to advance a first air/fuel mixture with a first air-to-fuel ratio into the fuel reformer, determine if a soot purge of the soot trap is to be performed and generate a purge-soot signal in response thereto, and operate the air/fuel input assembly so as to advance a second air/fuel mixture having a second air-to-fuel ratio greater than the first air-to-fuel ratio into the fuel reformer.